

REMARKS

A. Regarding the Amendments

Paragraphs 72, 87, 100, 132 and the caption of column 4 in Table 1 have been amended as set forth in the attached "Version With Markings To Show Changes Made." The amendments are supported by the application, as originally filed and therefore do not add any new matter.

Paragraphs 72, 87, 132 and Table 1 have been amended to correct minor typographical errors submitted in the original filing of the application. Paragraph 100 has been amended to add the text, "optic neuritis; Devic's disease; encephalitis; myelitis; encephalomyelitis; acute disseminated encephalomyelitis; acute necrotizing hemorrhagic leukoencephalomyelitis; acute transverse myelitis; limbic encephalitis; post-polio syndrome; subacute sclerosing panencephalitis; Guillian-Barre syndrome; acute, subacute, and chronic neuropathy, in which there is radiculitis within the spinal canal; aseptic meningitis; chronic and recurrent meningitis; stroke; CNS trauma; CNS compression; infection; psychiatric diseases; inflammation or rejection after CNS transplantation; neurodegenerative diseases; Alzheimer's disease; Parkinson's disease; Huntington's disease; amyotrophic lateral sclerosis; HIV-related encephalopathy; and 'stiff-man' syndrome." This list was inadvertently omitted from the original application, but insertion was intended, as can be seen from the fact that originally filed paragraph 100 ended with an incomplete sentence. Support for this amendment, adding this list of inflammatory diseases, conditions or disorders can be found in the specification as filed at, for example, paragraph [0111] and claims 10 and 32. Therefore this amendment does not add any new matter.

Additionally, this application was published on September 12, 2002 as U.S. Patent Application Publication No. 20020127233. Various errors made by the Patent and Trademark Office were noted in that publication, including, but not limited to:

- In paragraph [0003], line 8 of the publication, the gene identifiers for *lpr* and *gld* should be printed in italicized format, as presented on lines 5-6 of paragraph [0003] of the original application;
- In paragraph [0060], lines 6-7 of the publication, the terms *Saccharomyces* and *Pichia* should be printed in italicized format, as presented in line 5 of paragraph [0058] of the original application;
- In paragraph [0128] of the publication the title should read "MATERIALS AND METHODS:" as presented on the line following paragraph [0118] of the original application, not "METHODS AND METHODS:", as presented in the publication; and
- In paragraph [0142], line 11 of the publication please delete the term "MEBP" and insert the term "MBP", as presented on line 7 paragraph [0126] of the original application.

As the majority of these errors are typographical and not material, republication under 37 CFR §1.221(b) is not requested. However, correction of these errors, as made by the Patent Office is respectfully requested.

In re Application of:

Zhu et al.

Application No.: 09/927,110

Filed: August 10, 2001

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PATENT

Attorney Docket No.: MBM1240

CONCLUSION

No fee is deemed necessary in connection with the filing of this response. However, if any fee is deemed necessary, the Commissioner is authorized to charge (or apply any credits to) Deposit Account 50-1355. The Examiner is invited to contact Applicants' undersigned representative if there are any questions related to this matter.

Respectfully submitted,

Date: November 12, 2002



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In re Application of :

Zhu et al.

Application No.: 09/927,110

Filed: August 10, 2001

Version with Markings - Page 1



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Attorney Docket No.: MBM1240

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

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[0072] For example, it is reasonable to expect that an isolated replacement of a leucine with an isoleucine or valine, an aspartate with a glutamate, a threonine with a serine, or a similar replacement of an amino acid with a structurally related amino acid (*i.e.* isosteric and/or isoelectric mutations) will not have a major effect on the biological activity of the resulting molecule. Conservative replacements are those that take place within a family of amino acids that are related in their side chains. Genetically encoded amino acids [are] can be divided into four families:

[0087] In addition to FasL fragments consisting only of naturally occurring amino acids, peptidomimetics or peptide analogues are also provided. Peptide analogues are commonly used in the pharmaceutical industry as non-peptide drugs with properties analogous to those of the template peptide. These types of non-peptide [compound] compounds are termed "peptide mimetics" or "peptidomimetics" (Luthman, et al., A Textbook of Drug Design and Development, 14:386-406, 2nd Ed., Harwood Academic Publishers (1996); Grante (1994) *Angew. Chem. Int. Ed. Engl.* 33:1699-1720; Fauchere (1986) *Adv. Drug Res.* 15:29; Veber and Freidinger (1985) *TINS*, p.392; and Evans, et al. (1987) *J. Med. Chem.* 30:1229, which are incorporated herein by reference). Peptide mimetics that are structurally similar to therapeutically useful peptides may be used to produce an equivalent or enhanced therapeutic or prophylactic effect. Generally, peptidomimetics are structurally similar to a paradigm polypeptide (*i.e.*, a polypeptide that has a biological or pharmacological activity), such as naturally-occurring receptor-binding polypeptide, but have one or more peptide linkages optionally replaced by a linkage selected from the group consisting of: --CH₂NH--, --CH₂S--, --CH₂CH₂--, --CH=CH-- (cis and trans), --COCH₂--, --CH(OH)CH₂--, and --CH₂SO--, by methods known in the art and further described in the following references: Spatola, A. F. in Chemistry and Biochemistry of Amino Acids, Peptides, and Proteins, B. Weinstein, eds., Marcel Dekker, New York, p. 267 (1983); Spatola, A. F., Vega Data (March 1983), Vol. 1, Issue 3, Peptide Backbone Modifications (general review); Morley

(1980) *Trends Pharm. Sci.* pp. 463-468, (general review); Hudson, et al. (1979) *Int. J. Pept. Prot. Res.*, 14:177-185 (--CH₂NH--, CH₂CH₂--); Spatola, et al. (1986) *Life Sci.*, 38:1243-1249 (--CH₂--S); Hann (1982) *Chem. Soc. Perkin Trans. I*, 307-314 (--CH=CH--, cis and trans); Almquist, et al. (1980) *J. Med. Chem.*, 23:1392-1398, (--COCH₂--); Jennings-White, et al. (1982) *Tetrahedron Lett.* 23:2533, (--COCH₂--); Szelke, et al. (1982) European Appln. EP 45665 (--CH(OH)CH₂--); Holladay, et al. (1983) *Tetrahedron Lett.*, 24:4401-4404 (--C(OH)CH₂--); and Hruby (1982) *Life Sci.*, 31:189-199 (--CH₂--S--); each of which is incorporated herein by reference. One example of a non-peptide linkage is --CH₂NH--. Such peptide mimetics may have significant advantages over polypeptide embodiments, including, for example: more economical production, greater chemical stability, enhanced pharmacological properties (half-life, absorption, potency, efficacy, etc.), altered specificity (e.g., a broad-spectrum of biological activities), reduced antigenicity, and others.

[0100] The FasL fragments, or derivatives thereof, and pharmaceutical compositions of the present invention are used in the treatment of or amelioration of inflammatory symptoms in any disease, condition or disorder where inflammation suppression would be beneficial. Inflammatory diseases, conditions or disorders in which the FasL fragments or derivatives thereof and pharmaceutical compositions of the present invention can be used to inhibit unwanted inflammation include, but are not limited to, optic neuritis; Devic's disease; encephalitis; myelitis; encephalomyelitis; acute disseminated encephalomyelitis; acute necrotizing hemorrhagic leukoencephalomyelitis; acute transverse myelitis; limbic encephalitis; post-polio syndrome; subacute sclerosing panencephalitis; Guillian-Barre syndrome; acute, subacute, and chronic neuropathy, in which there is radiculitis within the spinal canal; aseptic meningitis; chronic and recurrent meningitis; stroke; CNS trauma; CNS compression; infection; psychiatric diseases; inflammation or rejection after CNS transplantation; neurodegenerative diseases; Alzheimer's disease; Parkinson's disease; Huntington's disease; amyotrophic lateral sclerosis; HIV-related encephalopathy; and "stiff-man" syndrome.

[0132] A summary of the clinical effects of rFasL treatment in acute EAE is shown in Table 1. Since the pain and stress might interfere with the EAE development in experimental animals (Kuroda Y. et al. (1994) *Brain Res Bull.* 34:15-17) due to the surgical procedures, the incidence of clinical EAE, the EAE onset, the peak EAE score and the loss of body weight during EAE between control-infused rats and non-infused rats were [comparied] compared. These two groups did not differ significantly among any of the above four measures. This indicates that the procedure of intrathecal infusion as well as the ingredients in the control infusion solution did not interfere with the development of acute EAE. In rFasL treatment experiments, fifteen rats were each infused with 350 ng rFasL during 7~10 dpi. (MBP-immunized rats typically developed EAE on 10 dpi or 11 dpi.) It was found that clinical EAE was completely prevented in 12 rats (80%). In three other rats that developed EAE symptoms, the EAE onset was significantly delayed (12.3 ± 0.3 vs. 10.6 ± 0.2 , $p < 0.001$), and the EAE severity (0.8 ± 0.1 vs. 2.9 ± 0.2 , $p < 0.001$) and weight loss (22.3 ± 6.1 vs. 44.5 ± 2.1 , $p < 0.001$) were also significantly reduced.

In Table 1, captions row, column 4:

EAE onset (days past immunization)